

What is claimed is:

1. An isolated peptide complex comprising:
a first peptide selected from the group consisting of:
5 (a1) phospholipase D (PLD),
(a2) a PLD variant,
(a3) a PLD fragment, and
(a4) a fusion peptide containing (a1), (a2), or (a3); and
a second peptide selected from the group consisting of
10 (b1) actin, ~~aldolase~~, collapsin response mediator molecule-2
(~~CRMP-2~~), phospholipase ~~C-γ1~~ (PLC-γ1),
glyceraldehyde-3-phosphate dehydrogenase (GAPDH), Akt1,
glucose transporter 4 (GLUT4), mammalian target of
rapamycin (mTOR), heat shock protein 70 (hsp70), dynamin,
15 munc 18, tubulin, n-nitric oxide synthase (nNOS), integrin
beta 3, guanine nucleotide exchange factor-H1 (GEF-H1),
V-ATPase, phosphoinositide-3-phosphate (PIP3), or
dopamine transporter (DAT),
(b2) a variant of (b1),
20 (b3) a fragment of (b1), and
(b4) a fusion peptide containing (b1), (b2), or (b3).
2. The isolated peptide complex of claim 1, wherein the first peptide
is PLD and the second peptide is selected from the group consisting of actin,
25 ~~aldolase~~, collapsin response mediator peptide-2 (~~CRMP-2~~), phospholipase C-γ1
(~~PLC-γ1~~), glyceraldehyde-3-phosphate dehydrogenase (GAPDH), Akt1, glucose
transporter 4 (GLUT4), mammalian target of rapamycin (mTOR), heat shock
protein 70 (hsp70), dynamin, munc 18, tubulin, n-nitric oxide synthase (nNOS),
integrin beta 3, guanine nucleotide exchange factor – H1 (GEF-H1), V-ATPase,
30 phosphoinositide-3-phosphate (PIP3), dopamine transporter (DAT).

3. The isolated peptide complex of claim 1, wherein the first peptide is the fusion peptide containing PLD, a PLD variant or a PLD fragment.

4. The isolated peptide complex of claim 1, wherein the second
5 peptide is the fusion peptide containing one or more peptide selected from the group consisting of actin, aldolase, collapsin response mediator peptide-2 (CRMP-2), phospholipase C- γ 1 (PLC- γ 1), glyceraldehyde-3-phosphate dehydrogenase (GAPDH), Akt1, glucose transporter 4 (GLUT4), mammalian target of rapamycin (mTOR), heat shock protein 70 (hsp70), dynamin, munc 18,
10 tubulin, n-nitric oxide synthase (nNOS), integrin beta 3, guanine nucleotide exchange factor - H1 (GEF-H1), V-ATPase, phosphoinositide-3-phosphate (PIP3), dopamine transporter (DAT), a variant thereof, and a fragment thereof.

5. The isolated peptide complex of claim 1, wherein the first peptide
15 is linked to the second peptide by a covalent bond.

6. A screening method for modulators of the peptide complex according to any one of claims 1 - 5, which comprises:

providing the isolated peptide complex;
20 contacting the isolated peptide complex with a test compound;
and
detecting an interaction between the test compound and the isolated peptide complex and/or an interaction change between the first peptide and the second peptide.

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7. A screening method for modulators of an interaction between a first peptide selected from the group consisting of

(a1) phospholipase D (PLD),
(a2) a PLD variant,
30 (a3) a PLD fragment, and
(a4) a fusion peptide containing (a1), (a2), or (a3); and
a second peptide selected from the group consisting of

(b1) actin, aldolase, collapsin response mediator molecule-2 (CRMP-2), phospholipase C- γ 1 (PLC- γ 1), glyceraldehyde-3-phosphate dehydrogenase (GAPDH), Akt1, glucose transporter 4 (GLUT4), mammalian target of rapamycin (mTOR), heat shock protein 70 (hsp70), dynamin, munc 18, tubulin, n-nitric oxide synthase (nNOS), integrin beta 3, guanine nucleotide exchange factor-H1 (GEF-H1), V-ATPase, phosphoinositide-3-phosphate (PIP3), or dopamine transporter (DAT),

(b2) a variant of (b1),

(b3) a fragment of (b1), and

(b4) a fusion peptide containing (b1), (b2), or (b3),

which comprises:

contacting the first peptide with the second peptide in presence of a test compound; and

detecting an interaction between the first peptide and the second peptide.

8. The screening method of claims 6 or 7, wherein at least one of the first and second peptides is a fusion peptide having a detectable tag.

9. The screening method claims 6 or 7, wherein the contacting step is conducted in a substantially cell free environment.

10. The screening method claims 6 or 7, wherein the interaction or interaction change between the first peptide and the second peptide is determined in a host cell.

11. The screening method claims 6 or 7, wherein the detecting comprises measuring the amount of the peptide complex formed with the first and second peptides.

12. The screening method claims 6 or 7, further comprising generating a data set defining one or more selected test compounds.

13. The screening method claim 12, wherein the data set is in a
5 transmittable form.